

云南叉蕨属(*Tectaria* Cav.)的增补与订正

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Taxonomic revision of and supplement to the *Tectaria* Cav. (Aspidiaceae) from Yunnan, China

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Abstract *Tectaria* Cav. is a large fern genus of ca. 150 species distributed in the tropic and sub-tropic regions of the world, of which 27 species and two varieties occur in China. These species are mostly distributed in the southern part to the Yangtze River, mainly concentrated in Yunnan, only two species spreading northwards to Sichuan located in the northern part to the Yangtze River. Based on examination of specimens deposited in KUN and PE, many of which are recent collections, a new species is described, one species and one variety are recognized as new records for China, one species as new record for Yunnan, one species as new record for Guizhou, and four specific names, i. e., *T. cosimilis* Ching et C. H. Wang, *T. decurrenti-alata* Ching et C. H. Wang, *T. fengii* Ching et C. H. Wang, *T. simaoensis* Ching et C. H. Wang are reduced to synonymies. As a result, 22 species and two varieties are recognized in the genus *Tectaria* from Yunnan.

Key words *Tectaria* Cav.; Revision; Supplement; Yunnan

摘要 叉蕨属是蕨类植物的大属之一,全世界约 150 种,分布于世界热带及亚热带地区。据记载,中国有 27 种、2 变种,分布在长江以南,仅有 2 种北达长江以北四川境内,而大部分种类集中分布在云南。近来,笔者主要对保存在中国科学院昆明植物研究所标本室的标本进行了清理,也参考了中国科学院植物研究所标本馆的标本,这些标本不少是近年来所采集,其中,发现 1 新种并有 1 种和 1 变种为中国新记录,1 种为云南新记录,1 种为贵州新记录,有 4 个种名是新异名,即 *Tectaria cosimilis* Ching et C. H. Wang, *T. decurrenti-alata* Ching et C. H. Wang, *T. fengii* Ching et C. H. Wang, *T. simaoensis* Ching et C. H. Wang。至此,所知云南产叉蕨属有 22 种、2 变种。

关键词 叉蕨属;订正;增补;云南

1 大齿叉蕨 (中国主要植物图说)阴地三叉蕨(台湾植物志)

Tectaria coadunata (J. Sm.) C. Chr. in Contr. U.S. Nat. Herb. 26:331. 1931; Ching in Sinensia 2: 18. 1931, p. p.; Holttum in Kew Bull. 43(3): 487. 1986; C. H. Wang in Fl. Reip. Sin. 6(1): 657. 1999. — *Aspidium coadunata* Hook. & Grev., Icon. Fil.: t. 202. 1831, non Kaulf. 1824. — *Sagenia coadunata* J. Sm. in Hook Jour. Bot. 4: 184. 1841, nom nov. — *Sagenia macrodonta* Fée, Gen. Fil. 313, t. 24A, fig. 1. 2852, nom nov. superfl. — *Tectaria macrodonta* (Fée) C. Chr., Ind. Fil. Suppl. III. 181. 1934, nom nov. superfl.; Ching, Icon. Fil. Sin. 3: pl. 125. 1935; 傅书遐,中国主要植物图说(蕨类植物门) 201, fig. 270. 1957. TYPE: Nepal. Wallich 377 (K), not seen.

Sagenia apifolia Christ in Bull. Acad. Geogr. Bot. Mans 120. 1906. TYPE: China. Sichuan, Omei Mt., E. H. Wilson 5376, not seen.

Aspidium kwanonense Hayata, Icon. Pl. Form. 8: 137, fig. 61. 1918. TYPE: China. Taiwan, not seen.

Tectaria consimilis Ching et C. H. Wang in Acta Phytotax. Sin. 19: 126. 1981; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 68, pl. 10: 4~8. 1999, syn. nov. TYPE: China. Yunnan, Xichou, K. M. Feng 11852 (holotype PE! isotype KUN!)

1a 大齿叉蕨 (原变种)

var. *coadunata*

China. Yunnan (云南): Jingdong (景东), M. G. Li (李鸣岗) 2556; Malipo (麻栗坡), C. W. Wang (王启无) 86888; Maguan (马关), S. K. Wu (武素功) 4084; Tengchong (腾冲), Q. Lin (林芹) 770647; Lushui (泸水), Nanshuibeidiao Exped. (南水北调队) 8113; Dali (大理), T. N. Liou (刘慎谔) 22469; Yangbi (漾濞), R. C. Ching (秦仁昌) 22527; Sino-Japan. Exped. (中-日考察队) 419, 642, 654; Gongsan (贡山), K. M. Feng (冯国楹) 7231; Qinghai-Xizang Exped. (青藏队) 9579 (all KUN).

生山地常绿阔叶林下石灰岩岩缝或沟边, 海拔 1000~2400 m。分布于中国四川、贵州、西藏、广西、广东、台湾。印度、锡金、尼泊尔、泰国、越南、老挝、马达加斯加也有分布。

本种在云南分布较普遍。1981 年秦仁昌和王铸豪先生发表 *Tectaria consimilis* 时指出其与本种相近似, 区别是前者叶柄和叶轴为暗棕色, 叶下面光滑无毛。我们检查了同号模式(冯国楹 11852), 其叶下面毛较少, 但并非光滑无毛, 而本种叶柄和叶轴有时也为暗棕色, 故予归并。Holttum (1988) 认为 *Tectaria viridifrons* Ching (in Acta Phytotax. Sin. 19: 130. 1981) 也属于本种, 我们认为前者叶柄为禾秆色, 孢子囊群靠近叶边与本种不同。《中国植物志》著者将其并入疏羽叉蕨 *Tectaria remotipinna* Ching et Wang 是合适的。

1b 柔毛大齿叉蕨 (变种)

var. *hirsuta* Holtt. in Kew Bull. 43: 488. 1988. TYPE: India. Darjeeling, J. S. Gamble 8335 (K), not seen.

China. Yunnan (云南): Yingjiang (盈江), W. M. Chu (朱维明) 10895 (PE). **Xizang** (西藏): Medog (墨脱), H. Sun *et al.* (孙航等) 392 (KUN).

生常绿林下, 海拔 900 m。分布于印度南部、东北部及斯里兰卡。模式标本采自印度大吉岭。中国新记录。

本变种与原变种不同在于形体较小, 高 30~40 cm, 基部一对羽片羽裂, 叶背密被长柔毛。

2 条裂叉蕨 (中国主要植物图说)

Tectaria phaeocaulis (Rosenst.) C. Chr. Ind. Fil. Suppl. 3: 183. 1934; Icon. Corm. Sin. 1: 246, fig. 492. 1972; DeVol. & C. M. Kuo in H. L. Li *et al.*, Fl. Taiwan 1: 344. 1975; Tagawa & K. Iwatsuki in Fl. Thailand 3: 371. 1988; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 78. 1999. — *Aspidium phaeocaulon* Rosenst. in Hedwigia 56: 345. 1915. TYPE: China. Taiwan, Urai, alt. 300 m, 1914-04, Pe Faurie no. 33, not seen.

Tectaria laciniata Ching in Bull. Fan Mem. Inst. Biol. Bot. Ser. 2: 200, t. 15. 1931, et in

Sinensia 2(2): 24. 1931; Tard.-Blot et C. Chr. in Lecomte, Not. Syst. 7: 92. 1938 et in Fl. Gén Indo-Chine 7(2): 414. 1941; 傅书遐, 中国主要植物图说(蕨类植物门) 201, fig. 271. 1957; Ching *et al.* in Chun *et al.*, Fl. Hainan. 1: 158. 1964. TYPE: China. Guangdong, C. G. Mathew s. n., not seen.

China. Yunnan (云南): Funing (富宁), H. T. Tsai(蔡希陶) 68-9035 (KUN).

生密林中。分布中国福建、广东、广西、海南、台湾。泰国、越南、日本也有分布。模式标本产中国台湾。云南新记录。

3 翅柄叉蕨 (植物分类学报)

Tectaria vasta (Bl.) Cop. in Phil. Journ. Sci. 2: 411. 1907; Ching in Sinensia 2(2): 25. 1931; Tard. et C. Chr. in Fl. Gén. Indo-Chine 7(2): 416. 1941; Holtt., Rev. Fl. Malaya 2: 512. 1955; Tagawa et K. Iwatsuki in Southeast As. St. 5: 98. 1967 et in Fl. Thailand 3: 380. 1988. — *Aspidium vastum* Bl., En. Pl. Jav. 142. 1928. TYPE: Indonesia. Java, not seen.

Tectaria decurrenti-alata Ching et C. H. Wang in Acta Phytotax. Sin. 19: 126. 1981; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 80, pl. 13: 1~4, 1999, syn. nov. TYPE: China. Yunnan, Jinping, Sino-USSR Exped. (中-苏考察队) 931(holotype, PE! isotype, KUN!).

China. Yunnan (云南): Luchun (绿春), Luchun Exped. (绿春队) 230, Y. M. Shui *et al.* (税玉民等) 13295; Cangyuan (沧源), S. K. Wu *et al.* (武素功等) 036 (all KUN).

生密林下水沟边, 海拔 600~800 m。分布于泰国、印度北部、马来西亚、印度尼西亚。模式标本产自印度尼西亚爪哇。

本种在东南亚热带地区分布较广, 形态变异大, 秦仁昌和王铸豪先生发表 *T. decurrenti-alata* 时曾指出与本种的区别在于植株较高大, 高达 1.5 m; 叶轴两侧的翅较狭, 宽仅 5 mm。我们检查了京都大学标本馆采自泰国、印度尼西亚等地的标本, 认为 *T. decurrenti-alata* 所具特征均在本种变化范围之内, 故予归并。

4 芽胞叉蕨 (中国植物志), 傅氏三叉蕨 (台湾植物志)

Tectaria fauriei Tagawa in Journ. Jpn. Bot. 14: 102. 1938 et in Acta Phytotax. Geobot. 10: 203. 1941; DeVol et C. M. Kuo in H. L. Li *et al.*, Fl. Taiwan 1: 342. 1975; Tagawa et K. Iwatsuki in Fl. Thailand 3: 381. 1988; C. H. Wang in Fl. Reip. Pop. Sin. 6(2): 82, pl. 16: 1~3. 1999. TYPE: China. Taiwan, Nantou, not seen.

Tectaria gemmifera Ching et C. H. Wang in Acta Phytotax. Sin. 19: 127. 1981. TYPE: China. Yunnan, Mengla, C. W. Wang 80044 (holotype, PE! isotype, KUN!).

Tectaria fengii Ching et C. H. Wang in Acta Phytotax. Sin. 19: 127. 1981; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 82, pl. 13: 5~8. 1999, syn. nov. TYPE: China. Yunnan, Xishuangbanna, K. M. Feng 20725 (holotype, PE! isotype, KUN!).

China. Yunnan (云南): Gengma (耿马), Y. H. Li(李延辉) 002284; Mengla (勐腊), D. D. Tao(陶德定) 85728, S. K. Wu *et al.* (武素功等) 100648, 100620, S. J. Pei(裴盛基) 59-9293 (all KUN).

生山地林下, 海拔 540~680 m。分布中国台湾。琉球群岛、越南也产之。模式标本产自台湾(南投)。

秦仁昌和王铸豪先生发表 *T. fengii* 时是同海南叉蕨 *T. hainanensis* Ching et C. H. Wang 作比较,我们检查了 *T. fengii* 的同号模式(冯国楣 20725),其特征与本种完全一致。

5 中间叉蕨 (植物分类学报)

Tectaria simulans Ching in Acta Phytotax. Sin. 19: 129. 1981; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 83, pl. 11: 5~7. 1999. TYPE: China, Yunnan, Mengla, W. T. Wang 10347 (holotype, PE ! isotype, KUN !).

China. Yunnan (云南): Mengla (勐腊), S. K. Wu et al. (武素功等) 100617 (KUN).

生山坡密林下,海拔 600 m。

本种很可能即为分布于泰国、马来西亚的 *T. maingayi* (Bak.) C. Chr.。因迄今为止,只有少数本种的标本,须待日后有更多的材料研究后方能确定。《中国植物志》记载本种叶柄无翅,但同号模式标本(王文采 10347)的叶柄中部以上有狭翅。

6 五裂叉蕨 (植物分类学报)

Tectaria quinquefida (Bak.) Ching in Sinensia 2(2): 26, fig. 7. 1931; C. Chr. Ind. Fil. Suppl. 3: 183. 1934; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 84. 1999. — *Nephrodium quinquefidum* Bak. in Journ. Bot. 1890: 265. 1890. — *Aspidium quinquefidum* Diels in Engl. u. Prantl, Nat. Pflanzenfam. 1(4): 186. 1899. TYPE: Vietnam, Balansa 1947, 1948 (syntypes, not seen).

Sagenia esquirolii Christ in Bull. Acad. Geogr. Bot. Mans 249. 1906. TYPE: China. Guizhou, Esquirol 277, not seen.

China. Yunnan (云南): Mengla (勐腊), H. He(何海)007, S. K. Wu et al. (武素功等) 100654 (KUN).

生山坡沟边次生林下,海拔 600 m。已知仅产贵州南部和越南。模式标本采自越南北部(Mt. Bavi)。云南新记录。据本种模式标本的图,上部第一对羽片向下沿羽轴无狭翅,我们的标本有狭翅,但叶柄绝无翅。

7 多形叉蕨 (中国植物志) 南投三叉蕨(台湾植物志)

Tectaria polymorpha (Wall. ex Hook.) Cop. in Philip. Journ. Sci. 2: 413. 1907; Ching in Sinensia 2(2): 30. 1931; C. Chr., Ind. Fil. Suppl. 3: 183. 1934; Tard.-Blot et C. Chr. in Lecomte, Not. Syst. 7: 93. 1938 et in Fl. Gén. Indo-Chine 7(2): 417. 1941; Tagawa et K. Iwatsuki in Fl. Thailand 3: 378. 1988; J. L. Tsai et al. in T. C. Huang, Fl. Taiwan, 2nd. ed. 1: 300. 1994; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 86. 1999. — *Aspidium polymorphum* Wall. (List 382. 1862, nom. nud.) ex Hook. Sp. Fil. 4: 54. 1862. — *Nephrodium polymorphum* Bak., Syn. Fil. 197. 297. 1874. TYPE: Nepal. (K), not seen.

Aspidium nantoense Hayata. Icon. Pl. Form. 8: 139, fig. 63. 1918. TYPE: Taiwan, Nantou, T. Kawakami et S. Fuji s. n., Mar. 1915 (holotype, TAIF 306, photo, PE !)

Aspidium trifolium v. Alder. v. Rosenb. in Bull. Buit. 2: 4 1912. — *Tectaria trifolia* (v. Alder. v. Rosenb.) C. Chr. in Bot. Jahrb. 66: 49. 1933; Cop., Fern Fl. Phil. 2: 307. 1960; DeVol et Kuo in H. L. Li et al., Fl. Taiwan 1: 345. 1975. TYPE: Philippines. Luzon, not seen.

7a 多形叉蕨 (原变种)**var. polymorpha**

China. Yunnan (云南): Xishuangbanna (西双版纳), Sino-USSR Exped. 7301; Jinghong (景洪), C. W. Wang (王启无) 78223; Mengla (勐腊), S. K. Wu *et al.* (武素功等) 1000601, 1000610, Sino-Japan. Exped. (中-日考察队) 380; Menghai (勐海), Sino-USSR Exped 5174; Luchun (绿春), S. K. Wu 20008; Cangyuan (沧源), S. K. Wu *et al.* 037; Gengma (耿马), Y. H. Li (李延辉) 002282; Luxi (潞西), W. Q. Yin (尹文清) 1524; Lushui (泸水), Nanshuibeidiao Exped. (南水北调队) 8129; Yanshan (砚山), C. W. Wang (王启无) 84916; Shizong (师宗), Shizong Division (师宗队) 330; Jingdong (景东), M. K. Li (李鸣岗) 1783 (all KUN).

生密林下河边阴湿处, 海拔 800 ~ 1500 m。分布于中国台湾、贵州。斯里兰卡、印度、锡金、尼泊尔、柬埔寨、泰国、马来西亚、菲律宾及印度尼西亚也有。模式标本采自尼泊尔。

据我们在野外观察, 本种的形态变异甚大, 常在一株上有单叶不分叉或有单叶三叉, 并均具孢子囊群。成熟的植株则为一回羽状, 其侧生羽片 2 ~ 4 对; 羽片边缘全缘, 在宽大的羽片上偶有波状锯齿。但无论怎么变异, 根状茎直立, 叶柄禾秆色, 羽片(叶片)基部均略偏斜, 耳状突起, 浅心脏形, 可与他种区别。

7b 狭基叉蕨 (变种)(中国植物志)

var. subcuneata Ching et C. H. Wang in Acta Phytotax. Sin. 19: 129. 1981. TYPE: China. Yunnan, Xishuangbanna, 1957-04-5, Sino-USSR Exped 5891 (holotype, PE! isotype, KUN!).

China. Yunnan (云南): Mengla (勐腊), H. T. Tsai (蔡希陶) 59-10999, S. J. Pei (裴盛基) 59-9267, Sino-Japan. Exped. (中-日考察队) 525 (all KUN)

生林下溪边湿处, 海拔 700 ~ 1200 m。

秦仁昌和王铸豪先生发表本变种时, 将中苏考察队 5891 号的产地误记为新平, 中国植物志中也未纠正, 实为西双版纳大渡岗附近。

8 思茅叉蕨 (植物分类学报)

Tectaria herpetocoulos Holtt. in Dansk Bot. Ark. 23: 241. 1965 et in Rev. Fl. Malaya 2: 636. 1968; Tagawa et K. Iwatsuki in Southeast As. St. 5: 99. 1967 et in Fl. Thailand 3: 379. 1988. TYPE: W Malaysia, B. E. G. Molesworth-Allen 4454 (holotype, K, not seen).

Tectaria simaoensis Ching et C. H. Wang in Acta Phytotax. Sin. 19: 130, 1981; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 87, pl. 15: 6 ~ 8. 1999, syn. nov. TYPE: China. Yunnan, Simao, R. C. Ching 595 (holotype, PE! isotype, KUN!).

China. Yunnan (云南): Mengla (勐腊), H. Zhu (朱华) 2096, S. K. Wu *et al.* (武素功等) 100618, 100627, 100659, S. J. Pei (裴盛基) 59-9267 (KUN); Menglian (孟连), Menglian Exped. (孟连调查组) 010179 (KUN); Jinghong (景洪), C. W. Wang (王启无) 75999 (paratype of *T. simaoensis*), Sino-USSR Exped. 5891 (paratype of *T. simaoensis*) (all KUN).

生沟谷林下, 海拔 600 ~ 1100 m。分布于泰国北部(清迈、清莱)、越南、缅甸、印度、马来西亚。模式标本采自马来西亚。

秦仁昌和王铸豪先生发表 *Tectaria simaoensis* Ching et C. H. Wang 时指出与多形叉蕨

Tectaria polymorpha (Wall. ex Hook.) Cop. 相似, 但根状茎横走, 羽轴及侧脉下面光滑无毛, 羽片基部圆形而无耳; 而这些特征也正是 *T. herpetocoulos* Holtt. 的特征, 故予以合并。本种近似产于泰国等地的 *T. rumicifolia* (Ridl.) C. Chr. 但本种叶柄鳞片狭披针形, 棕色, 边缘流苏状, 羽片基部狭楔形, 具柄, 叶脉在上面下陷, 可以区别。笔者最近在越南北部也采到本种, 是越南一新分布记录。

9 绿春叉蕨 新种 图 1

Tectaria luchunensis S. K. Wu, sp. nov. Fig. 1

Species nova arcte affinis *T. simonsii* (Bak.) Ching, sed stipitibus stramineis differt. Species etiam affinis *T. subtriphyllae* (Hook. et Arn.) Cop., sed rhizomatibus erectis, laminis bipinnatis, infra subglabris recedit.

Planta tota 60 ~ 100 cm alta. Rhizoma erectum, apice cum basibus stipitum paleis atrobrunneis, lineari-lanceolatis, 1 cm longis, 1 mm latis, apice filiformibus, margine integris dense obtectum. Frondes caespitosae. Stipites 40 ~ 50 cm longi, basi 5 ~ 6 mm crassi, supra sulcati, straminei, cum rhachibus pilis brunneis articulatis obtecti, basi paleis praediti, sursum gradatim glabrescentes. Lamina ovato-triangularata vel triangularata-lanceolata, 30 ~ 55 cm longa, basi cordata 22 ~ 30 cm lata, apice acuminata vel caudato-acuminata, bipinnata, pinnis lateralibus 3 ~ 4-jugis, oppositis vel alternatis inter se remotis, pinnis basalibus maximis, 15 ~ 30 cm longis, 10 ~ 20 cm latis, ovato-lanceolatis vel asymmetrice triangularatis, apice acuminatis vel caudatis, margine pinnatilobatis vel undulatis, ad basim pinnatis, petiolis 1.5 ~ 3 cm longis, pinnulis 2 ~ 3-jugis, oppositis vel multo alternatis, inter se 1 ~ 3 cm remotis, lanceolatis vel falcato-lanceolatis, anterioribus quam posterioribus multo brevioribus, pinnulis basalibus multo longioribus, 8 ~ 10 cm longis, 1 ~ 3 cm latis, apice acuminatis, basi truncatis vel cuneatis, breviter petiolatis, inferne undulantes vel lobatis, pinnis superioribus minoribus 2 ~ 3-jugis, sessilibus, pinnis terminalibus oblongo-lanceolatis, 19 ~ 21 cm longis, medio 4.5 cm latis, basi late cuneatis, apice acuminatis vel caudatis, margine undulato-lobatis. Pagina frondis textura papyracea, griseo-viridis in sicco, utrinque glabra, rhachidi cum costa supra pilis articulatis dense obtecta, infra subglabra, nervis lateralibus conspicuis, nervulis irregulariter anastomosantibus, nervulos simplices vel furcatos includentibus. Sori parvi rotundati, indusiis ignotis, inter nervos laterales 2 ~ 3 seriatim irregulariterque dispositi. Sporae ellipticae a fronte visae perisporiis reticulatis.

China. Yunnan (云南): Luchun (绿春), Qi Ma Ba (骑马坝), alt. 900 ~ 1200 m, river side, under broad-leaved evergreen forests, 1995-11-04, S. K. Wu *et al.* (武素功等) 891 (holotype, here designated, KUN); the same locality, 1995-11-01, S. K. Wu *et al.* 868 (KUN); the same locality, 2000-10, S. K. Wu *et al.* 20001, 20002, 20003 (KUN).

植株高 60 ~ 100 cm。根状茎直立, 与叶柄基部密被鳞片; 鳞片膜质, 黑褐色, 线状披针形, 长约 1 cm, 宽约 1 mm, 先端毛发状, 全缘。叶簇生; 叶柄长 40 ~ 50 cm, 基部粗 5 ~ 6 mm, 禾秆色, 上面有浅沟, 密被具关节、棕色的毛, 基部被鳞片, 向上逐渐稀少; 叶片卵状三角形或三角状披针形, 长 30 ~ 55 cm, 基部宽 22 ~ 30 cm, 心形, 先端渐尖或尾状渐尖, 二回羽状, 上部一回羽状, 顶生羽片单一, 不分叉; 侧生羽片 3 ~ 4 对, 互生或近对生, 远离, 基部一对羽片最大, 长 15 ~ 30 cm, 宽 10 ~ 20 cm, 卵状披针形, 或不对称的三角形, 先端渐尖或尾状, 基部浅心形, 边缘羽裂或波状, 具 2 ~ 3 对分离小羽片, 有 1.5 ~ 3 cm

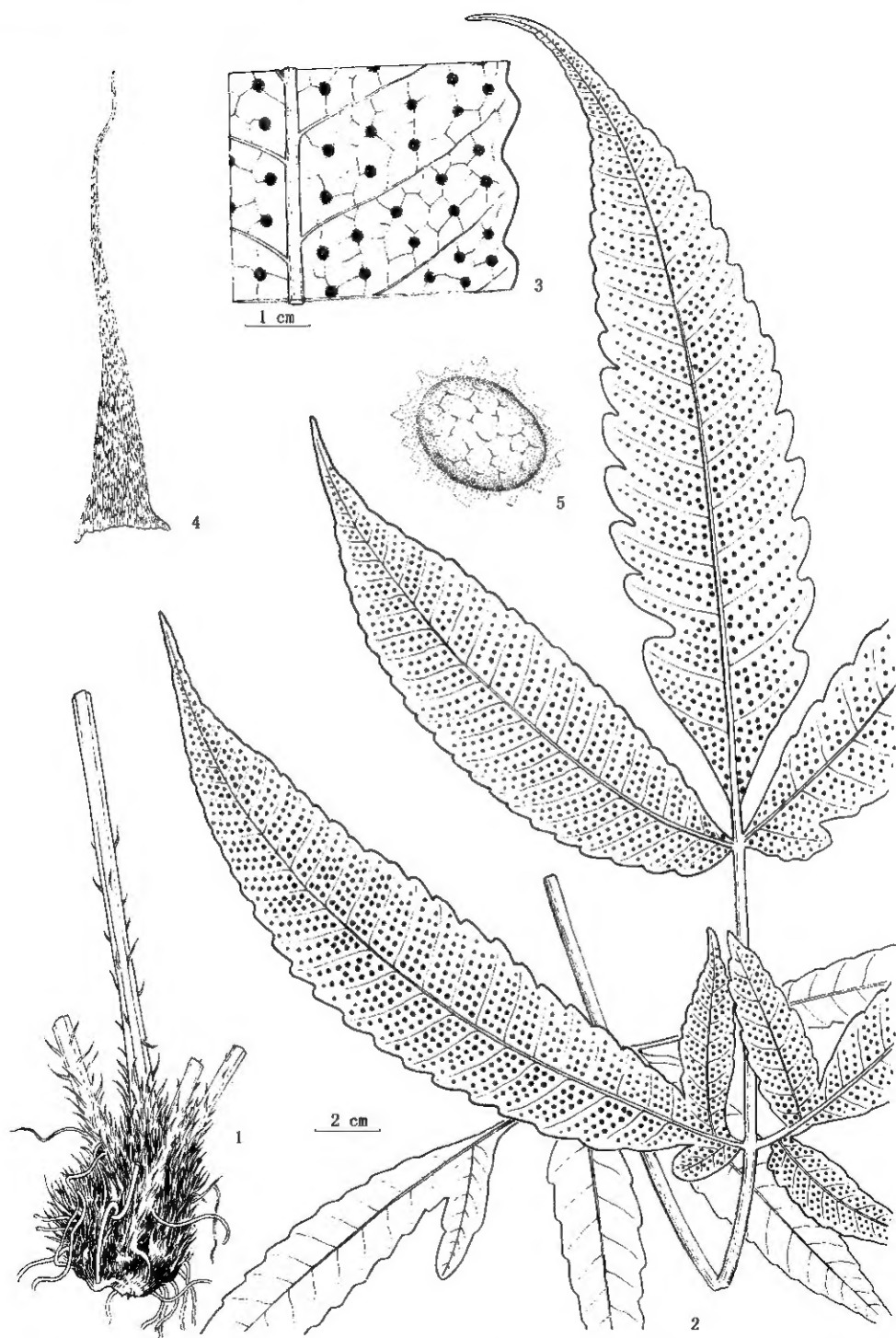


图1 绿春叉蕨 1. 根状茎及叶柄下部; 2. 叶片; 3. 羽片的一部分; 4. 叶柄基部的鳞片($\times 3.5$); 5. 孢子($\times 45$). (杨建昆绘)

Fig. 1 *Tectaria luchunensis* 1. Rhizome with lower part of stipes; 2. Frond; 3. Part of pinna; 4. Scales from lower part of stipe ($\times 3.5$); 5. Spores ($\times 45$). Drawn by Yang Jian-Kun from S. K. Wu *et al.* 891.

短柄;小羽片对生或互生,相距 1~3 cm,披针形或披针状镰刀形,基部一对小羽片长 8~10 cm,宽 1~3 cm,先端渐尖,基部平截或楔形,具短柄,下侧边缘波状或浅裂,上侧边往往近全缘,第二对小羽片较小,无柄;向上 2~3 对羽片同基部羽片,但较小;顶端一片羽片长圆披针形,长 19~21 cm,中部宽 4~5 cm,基部宽楔形,具 1~1.5 cm 的短柄,先端渐尖或尾状,边缘波状浅裂。叶纸质,干后灰绿色,两面光滑;叶轴和羽轴上面密被棕色有节的短毛,下面较疏。侧脉明显,小脉联接成不规则的网眼,两面均隆起,内藏小脉单一或分叉。孢子囊群圆形,生于联接小脉的中部,在侧脉间有不整齐的二到三行,囊群盖未见。孢子极面观椭圆形,周壁具网状纹饰。

本种近似燕尾叉蕨 *T. simonsii* (Bak.) Ching, 但叶柄为禾秆色。也近于三叉蕨 *T. subtriphylla* (Hook. et Arn.) Cop., 但根状茎直立,叶为-型,二回羽状,下面无毛,仅在中肋及羽轴上被毛。

10 粗齿叉蕨 (植物分类学报)

Tectaria grossedentata Ching et C. H. Wang in Acta Phytotax. Sin. 19: 127, 1981; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 91, pl. 16: 4~5, 1999. TYPE: China. Yunnan, Jinping, Sino-USSR Exped. 759 (holotype, PE! isotype, KUN!)

China. Yunnan (云南): Jinping (金平), Sino-USSR Exped. (中-苏考察队) 759 (KUN!). **Guizhou** (贵州): Xingyi (兴义), S. K. Wu et al. (武素功等) 100862 (KUN).

生水边林下潮湿处,海拔 360 m。贵州新记载。

本种发表时仅有采自金平的一号标本,1998 年我们在贵州兴义马岭峡谷采到的标本,与模式标本相比较,形态特征相似,仅植株较高大。

11 疣状叉蕨 (中国植物志)

Tectaria impressa (Fée) Holtt. in Kew Bull. 43: 483, 1988. — *Phlebiogonium impressum* Fée, Gen. Fil. 314, t. 24A, fig. 1. 1852. TYPE: India. Griffith s. n. (RB), not seen.

Aspidium variolosum Wall. (List 379, 1828, nom. nud.) ex Hook. Sp. Fil. 4: 58, 1862. — *Tectaria variolosa* (Wall. ex Hook.) C. Chr. in Contr. U. S. Nat. Herb. 26: 289, 1931; Ching in Sinensia 2(2): 21, fig. 3, 1931; Tagawa et K. Iwatsuki in Fl. Thailand 3: 368, 1988; J. L. Tsai et al. in T. C. Huang, Fl. Taiwan, 2nd. ed. 1: 301, 1994; C. H. Wang in Fl. Reip. Pop. Sin. 6(1): 73, 1999. TYPE: Nepal. Wallich 379, p. p. (K), not seen.

Aspidium immersum Hook. Sp. Fil. 4: 58, 1862, non Bl. 1828. TYPE: Nepal. Wallich s. n. (K), not seen.

China. Yunnan (云南): Funing (富宁), H. T. Tsai (蔡希陶) 58-88903, S. K. Wu (武素功) 61-3677; Jinping (金平), Luchun Division (绿春队) 1135; Mengla (勐腊), S. J. Pei (裴盛基) 58-10878, 59-9279; Gengma (耿马), Y. H. Li (李延辉) 002233 (all KUN).

生山坡或河边密林下阴湿处,海拔 650~800 m。分布中国台湾、海南、广西。印度、锡金、尼泊尔、越南、老挝、泰国及印度尼西亚也有分布。模式标本采自印尼苏门答腊。

Fée 于 1852 年发表了 *Phlebiogonium impressum* 之后,未引起注意,1862 年 Hooker 发表了 *Aspidium variolosum* Wall. ex Hook. 就一直被沿用。1988 年 Hottum 研究认为二者为同种, *Aspidium variolosum* Wall. ex Hook. 是本种的同物异名。

12 洛克叉蕨 (新拟)

Tectaria rockii C. Chr. in Contr. U. S. Nat. Herb. 26: 331. 1931; Tard.-Blot. et C. Chr. in Fl. Gén. Indo-Chine 7(2): 420. 1941; Holtt. in Dansk. Bot. Ark. 23: 238. 1965; Tagawa et K. Iwatsuki in Southeast As. St. 5: 98. 1967 et in Fl. Thailand 3: 374. 1988. TYPE: Thailand. Western Siam: Between Palut and Nam Dip, on the trail from Raheny to Mesant, 1920-12, J. F. Rock 668, not seen.

Tectaria burmanicsia Ching in Sinensia 2 (2): 31, pl. 12. 1931, p. p. TYPE: Thailand. J. F. Rock 668 (syntype, K); Myanmar, J. F. Lace 4857 (syntype, K), not seen.

China. Yunnan (云南): Mengla (勐腊), S. J. Pei (裴盛基) 59-10279, S. K. Wu *et al.* (武素功等) 100619, 100615, 100616 (all KUN).

生石灰岩山地常绿阔叶林下, 海拔 600 ~ 1200 m。分布于缅甸、泰国及中南半岛。同举模式标本分别采自缅甸和泰国。中国新记录。

本种近似粗齿叉蕨 *T. grossedentata* Ching et C. H. Wang, 但羽片二回羽状, 小羽片羽状深裂, 基部羽片不对称三角状披针形, 即其基部下侧小羽片伸长。

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